

1994 STATE UPC AMENDMENTS

H. Effective July 1, 2004, there is herewith adopted, by reference, the Uniform Plumbing Code, 1994 Edition, including Appendix Chapters: A, B, D, E, F, and H and IAPMO Installation Standards published by the International Association of Plumbing and Mechanical Officials and as declared a public record by Resolution No. 04-911 of the Mayor and Council of the City of Goodyear, by reference in total and as if each of the provisions thereof were set forth herein, except as amended or modified as follows:

- (1) Move Section 101.4.1.3 to a new Section 301.1.5.
- (2) Move Section 101.5.2 to a new Section 301.1.6.
- (3) Move Section 101.5.4 to a new Section 301.1.7.
- (4) Move Section 101.5.5 to a new Section 301.1.8.
- (5) Delete Subsection 102.3.2, "Penalties."
- (6) Modify Subsection 103.4, "Fees" by deleting Subsections 103.4.1 through, and including, 103.4.5.3 and inserting, in lieu thereof, the following:

"103.4.1 Permit and Plan Review Fees. The fees for each plumbing permit shall be as set forth in the International Building Code adopted by the City."
- (7) Move Section 103.5 to new Section 318.0.
- (8) Move Section 103.5.1 to new Section 318.1.
- (9) Move Section 103.5.1.1 to new Section 610.15.
- (10) Move Section 103.5.1.2 to a new Section 318.2.
- (11) Move Section 103.5.1.3 to a new Section 318.3.
- (12) Move Section 103.5.1.4 to a new Section 318.4.
- (13) Move Section 103.5.3 to a new Section 319.0.
- (14) Move Section 103.5.3.1 to a new Section 319.1.
- (15) Move Section 103.5.3.2 to a new Section 319.2.
- (16) Move Section 103.5.3.3 to a new Section 610.16.

- (17) Move Section 103.5.3.4 to a new Section 319.3.
- (18) Move Section 103.5.3.5 to a new Section 319.4.
- (19) Move Section 103.5.3.7 to a new Section 319.5.
- (20) Move Section 103.5.5 to a new Section 318.5.
- (21) Move Section 103.5.5.1 to a new Section 318.6.
- (22) Move Section 103.5.5.2 to a new Section 318.7.
- (23) Modify the fourth paragraph of Subsection 103.5.6, "Reinspections", to read as follows:

"To obtain reinspection, the applicant shall first pay the reinspection fee as established in the International Building Code as adopted by the City and then request an additional inspection."
- (24) Move Section 103.5.6.1 to a new Section 319.6.
- (25) Move Section 103.5.6.2 to a new Section 319.7.
- (26) Move Section 103.5.6.3 to a new Section 319.8.
- (27) Move Section 103.6 to a new Section 321.0.
- (28) Move Section 103.6.1 to a new Section 321.1.
- (29) Move Section 103.6.2 to a new Section 321.2.
- (30) Move Section 103.6.3 to a new Section 321.3.
- (31) Delete Table 1-1, "Plumbing Permit Fees".
- (32) Section 202.0, "Definitions", is hereby amended by modifying items (2) and (3) of the definition of "Insanitary" to read as follows:

"(2) Any opening in a drainage system, except where lawful, which is not provided with an approved liquid sealed trap.

(3) Any plumbing fixture or other waste discharging receptacle or device, which is not supplied with water sufficient to flush it and maintain it in a clean condition except those specifically designed to function without water."
- (33) Add the following definition to read as follows:

“PEX - Crosslinked Polyethylene”

- (34) Section 301.0, “Materials - Standard and Alternates”, is hereby amended by adding the following Subsections:

“301.1.5 Existing Construction. No provision of this Code shall be deemed to require a change in any portion of a plumbing or drainage system or any other work regulated by this Code in or on an existing building or lot when such work was installed and is maintained in accordance with law in effect prior to effective date of this Code, except when any such plumbing or drainage system or other work regulated by this Code is determined by the Administrative Authority to be in fact dangerous, unsafe, insanitary, or a nuisance and a menace to life, health, or property.

301.1.6 Health and Safety. Whenever compliance with all the provisions of this Code fails to eliminate or alleviate a nuisance, or any other dangerous or insanitary condition which may involve health or safety hazards, the owner or the owner’s agent shall install such additional plumbing and drainage facilities or shall make such repairs or alterations as may be ordered by the Administrative Authority.

301.1.7 Changes in Building Occupancy. Plumbing systems which are a part of any building or structure undergoing a change in use or occupancy, as defined in the Building Code, shall comply to all requirements of this Code which may be applicable to the new use or occupancy.

301.1.8 Maintenance. All plumbing systems, materials and appurtenances, both existing and new, and all parts thereof shall be maintained in proper operating condition. All devices or safeguards required by this Code shall be maintained in conformance with the Code edition under which installed. The owner or the owner’s designated agent shall be responsible for maintenance of plumbing systems. To determine compliance with this subsection, the Administrative Authority may cause any plumbing system to be reinspected.”

- (35) Chapter 3, “General Regulations”, is hereby amended by adding the following:

“318.0 Inspections

318.1 General. All plumbing systems for which a permit is required by this Code shall be inspected by the Administrative Authority. No portion of any plumbing system shall be concealed until inspected and approved. Neither the Administrative Authority nor the jurisdiction shall be liable for expense entailed in the removal or replacement of material required to permit inspection. When the installation of the plumbing system is complete, an

additional and final inspection shall be made. Plumbing systems regulated by the Code shall not be connected to the water, energy fuel supply, or the sewer system until authorized by the Administrative Authority.

318.2 Scope. All new plumbing work and such portions of existing systems as may be affected by new work, or any changes, shall be inspected by the Administrative Authority to insure compliance with all the requirements of this Code and to assure that the installation and construction of the plumbing system is in accordance with approved plans.

318.3 Covering or Using. No plumbing or drainage system, building sewer, private sewer disposal system or part thereof, shall be covered, concealed, or put into use until it has been tested, inspected, and accepted as prescribed in this Code.

318.4 Uncovering. Any drainage or plumbing system, building sewer, private sewage disposal system or part thereof, which is installed, altered, or repaired is covered or concealed before being inspected, tested, and approved as prescribed in this Code, it shall be uncovered for inspection after notice to uncover the work has been issued to the responsible person by the Administrative Authority.

318.5 Other Inspections. In addition to the inspections required by this Code, the Administrative Authority may require other inspections of any plumbing work to ascertain compliance with the provisions of this Code and other laws which are enforced by the Administrative Authority.

318.6 Defective Systems. An air test shall be used in testing the sanitary condition of the drainage or plumbing system of any building premises when there is reason to believe that it has become defective. In buildings or premises condemned by the proper Administrative Authority because of an insanitary condition of the plumbing system or part thereof, the alterations in such system shall conform to the requirements of this Code.

318.7 Moved Structures. All parts of the plumbing systems of any building or part thereof that is moved from one foundation to another, or from one location to another, shall be completely tested as prescribed elsewhere in this section for new work, except that walls or floors need not be removed during such test when other equivalent means of inspection acceptable to the Administrative Authority are provided.

319.0 Testing of Systems. All plumbing systems shall be tested and approved as required by this Code or the Administrative Authority.

319.1 Testing. Water piping shall be tested and approved as provided in Section 610.16.

319.2 Test. Tests shall be conducted in the presence of the Administrative Authority or the Administrative Authority's duly appointed representative.

319.3 Test Waived. No test or inspection shall be required where a plumbing system, or part thereof, is set up for exhibition purposes and has no connection with a water or drainage system.

319.4 Exception. In cases where it would be impractical to provide aforementioned water or air tests, or for minor installations and repairs, the Administrative Authority, at the Administrative Authority's discretion, may make such inspection as deemed advisable in order to be assured that the work has been performed in accordance with the intent of this Code.

319.5 Tightness. Joints and connections in the plumbing system shall be gastight and watertight for the pressures required by the test.

319.6 Corrections. Notices of correction or violation shall be written by the Administrative Authority and may be posted at the site of the work or mailed or delivered to the permittee or his authorized representative. Refusal, failure, or neglect to comply with any such notice or order within ten (10) days of receipt thereof, shall be considered a violation of this Code.

319.7 Retesting. If the Administrative Authority finds that the work will not pass the test, necessary corrections shall be made and the work shall then be resubmitted for test or inspection.

319.8 Approval. Upon the satisfactory completion and final test of the plumbing system, a certificate of approval shall be issued by the Administrative Authority to the permittee on demand.

320.0 Test Gages. Test required by this Code, which are performed utilizing dial gauges, shall be limited to gauges having the following pressure graduations or incrementations.

320.1 Required pressure tests of ten (10) pounds (69 kPa) or less shall be performed with gauges of 1/10 pound (0.7 kPa) incrementation or less.

320.2 Required pressure tests exceeding ten (10) pounds (69 kPa) but less than one hundred (100) pounds (689 kPa) shall be performed with gauges of one (1) pound (6.9 kPa) incrementation or less.

320.3 Required pressure tests exceeding ten (10) pounds (69 kPa) shall be performed with gauges incremented for two (2) percent or less of the required test pressure.

320.4 Test gauges shall have a pressure range not greater than twice the test pressure applied.

321.0 Connection Approval.

321.1 Energy Connections. No person shall make connection from a source of energy or fuel to any plumbing system or equipment regulated by this Code and for which a permit is required until approved by the Administrative Authority.

321.2 Other Connections. No person shall make connection from any water-supply line nor shall connect to any sewer system regulated by this Code and for which a permit is required until approved by the Administrative Authority.

321.3 Temporary Connections. The Administrative Authority may authorize temporary connection of the plumbing equipment to the source of energy or fuel for the purpose of testing the equipment.”

- (36) Table 3-1 is modified to include the following:

“Table 3-1

Materials	Type of Joints	Horizontal	Vertical
PEX	Mechanical	1 inch (25.4 mm) and smaller, 3 feet (0.9 m), 1-1/4 inch (31.8 mm) and larger 4 feet (1.2 m)	Base and each floor. Provide mid-story guides.”

- (37) Subsection 402.1 of Section 402.0, “Water Conservation”, of Chapter 4, “Plumbing Fixtures”, is hereby amended to read as follows:

“The maximum flow rates and quantities for all plumbing fixture fittings shall be in consistent with A.R.S. § 45-1-12.”

- (38) Subsection 402.2 of Section 402. 0, “Water Conservation”, of Chapter 4, “Plumbing Fixtures”, is hereby deleted.

- (39) Section 501.0, “General”, of Chapter 5, “Water Heaters”, is hereby amended to read as follows:

“General. The regulations of this chapter shall govern the construction, location, and installation of all fuel burning and other water heaters heating potable water, together with all chimneys, vents, and their connectors. All design, construction, and workmanship shall be in conformity with accepted engineering practices and shall be of such character as to secure the results

sought to be obtained by this Code. No water heater shall be hereinafter installed which does not comply in all respects with the type and model of each size thereof approved by the Administrative Authority. A list of generally accepted gas equipment standards is included in Table 14-1. A water heater (boiler) which exceeds any of the following limitations may not be placed in service until the vessel is separately inspected pursuant to A.R.S. § 32-2-11.

- 1)1. 120 gallon nominal water capacity.
- 2)2. 160 psi operating pressure.
- 3)3. 210 degree (F) operating temperature.
- 4)4. 200,000 BTU/h heat input."

- (40) Subsection 507.2 of Section 507.0, "Combustion Air", is modified to read as follows:

"In new construction, all enclosed buildings shall be provided with combustion air obtained from outside. In existing buildings of ordinary tightness insofar as infiltration is concerned, all or a portion of the combustion air for fuel-burning water heaters may be obtained from infiltration if the enclosure volume equals at least fifty (50) cubic feet per 1000 Btu/h (4.831 L/W) input of the water heater. Existing buildings of unusually tight construction shall also be provided with outside combustion air.

No change in combustion air is required when an existing fuel-burning water heater is replaced with a new water heater having the same or smaller Btu/h input capacity. When an existing fuel-burning water heater is replaced by a higher capacity water heater, or when one or more additional fuel-burning water heaters are installed in an existing building containing other fuel-burning appliances, the room or space shall be provided with combustion air as required for new construction."

- (41) Subsection 507.3.1 of Section 507.0, "Combustion Air", is hereby amended by adding the following exception to read as follows:

"Combustion air openings may be provided in an outside door provided:

1. The door is not less than 2 feet 0 inches in width and 6 feet 8 inches in height; and,
2. The openings are spaced as far apart as possible or a full louvered door is provided; and,
3. The equipment room ceiling is not more than 16 inches above the top of the door."

- (42) Subsection 507.6, "Liquefied Petroleum Gas", is hereby added to Section 507.0, "Combustion Air", to read as follows:

"507.6 Liquefied Petroleum Gas (LPG). All provisions of this chapter shall apply to combustion air for equipment using liquefied petroleum gas.

Exceptions:

1. The bottom of the lower combustion air opening shall be located at or below the floor of the room containing LPG-fueled equipment.
2. The lower combustion air duct, when used, shall have the bottom installed level or with a downward slope starting from a point at or below the equipment room floor and continuing to the outside of the structure. The duct shall terminate above the finish grade and shall be provided with wire mesh screen to cover the opening.
3. No pockets or trapped sections shall be permitted in any lower combustion air duct.”

(43) Table 5-1 is hereby modified to read as follows:

“TABLE 5-1
Size of Combustion Air Openings or Ducts¹ for Gas- or Liquid-Burning Water Heaters

Column 1 Existing Buildings of Ordinary Tightness		Column 2 New Buildings and Unusually Tight Construction	
Condition	Size of Opening or Duct	Condition	Size of Opening or Duct
Appliance in unconfined ² space	May rely on infiltration alone.	Appliance in unconfined ² space: Obtain combustion air from outdoors or from space freely communicating with outdoors.	Provide 2 openings, minimum 50 sq. in. each opening. ³
Appliance in confined ⁴ space 1. All air from inside building	Provide two openings into enclosure each having one sq. in. per one thousand Btu/h input freely communicating with other unconfined spaces ³ . Minimum one hundred sq. in. each opening.	Appliances in confined ⁴ space: Obtain combustion air from outdoors or from space freely communicating with outdoors.	Provide two openings into enclosure, minimum 50 sq. in. each opening. ³
2. All air from outdoors: Obtain from outdoors or from space freely communicating with outdoors.	Use the methods listed for confined space as indicated in Column 2.		

¹ For location of opening, see Section 507.3

² As defined in Chapter 2.

³ When the total Btu/h input rating of all enclosed appliances/equipment exceeds 100,000 Btu/h, the combined net free area of all combustion air openings shall be increased by not less than 1 additional sq. in. for each 1,000 Btu/h in excess of 100,000 Btu/h.”

⁴ As defined in Section 202.0”

- (44) Subsection 517.6 of Section 517.0, "Vent Termination", is hereby amended to read as follows:

"No venting system shall terminate less than three (3) feet (0.9m) above any forced air inlet or evaporative cooler located within ten (10) feet (3.0m) or less than four (4) feet (1.2m) from any property line except a public way."

- (45) Subsection 601.1 Of Section 601.0, "Running Water Required", is hereby amended by adding the following exception:

"Potable running water shall not be required for waterless urinals which have been approved by the Administrative Authority."

- (46) Add Subsection 603.4, "Secondary Backflow Protection", to Section 603.0, "General Requirements", to read as follows:

"603.4 Secondary Backflow Protection. The following occupancies shall have Reduced Pressure Principle Backflow Prevention Assemblies installed as near as practical to the water service meter connection: hospitals, surgical clinics, laboratories, morgues, mortuaries, veterinary hospitals, industrial occupancies, packing plants, slaughter houses, chemical plants, municipal waste treatment facilities, and construction water services. Note: Multiple water services which are interconnected onsite shall be provided with not less than a Double Check Valve Assembly at each service connection."

- (47) Subsection 604.1 of Section 604.0, "Materials", is hereby modified to read:

"Water pipe and fittings shall be of brass, copper, cast iron, galvanized wrought iron, galvanized steel, or other approved materials. Asbestos-cement, CPVC, PE, PEX, or PVC water pipe manufactured to recognized standards may be used for cold water distribution systems outside a building. CPVC or PEX water pipe and tubing may be used in the water supply system, except valves and similar devices shall be of a like material, except where otherwise approved by the Administrative Authority."

- (48) Section 604.0, "Materials", is hereby amended by adding Subsection 604.11 to read as follows:

"604.11 Cross-linked polyethylene (PEX) tubing shall be marked with appropriate designation or designations consistent with the fitting system or systems for which the tubing has been listed or approved. PEX tubing shall be installed with mechanical joints in compliance with the appropriate standards and the manufacturer's instructions."

- (49) Subsection 608.5 of Section 608.0 "Water Pressure, Pressure Regulators, and Pressure Relief Valves", is hereby amended to read as follows;

"All relief valves shall be provided with a drain, not smaller than the relief valve outlet, of galvanized steel, hard drawn copper piping and fittings, CPVC, PB, or listed relief valve drain tube with fittings which shall not reduce the internal bore of the pipe or tubing (straight lengths as opposed to coils) and shall extend from the valve to the outside of the building with the end of the pipe not more than two (2) feet (0.6m) nor less than six (6) inches (152.4mm) above the ground and pointing downward. Such drains may terminate at other approved locations. No part of such drain pipe shall be trapped and the terminal end of the drain pipe shall not be threaded."

- (50) Section 610.0, "Size of Potable Water Piping", is hereby amended by adding Subsection 610.15 to read as follows:

"610.15 Inspections. No water supply system or portion thereof, shall be covered or concealed until it first has been tested, inspected, and approved."

- (51) Section 610.0, "Size of Potable Water Piping", is hereby amended by adding Subsection 610.16 to read as follows:

"610.16 Water Piping. Upon completion of a section or of the entire hot and cold water supply system, it shall be tested and proved tight under a water pressure not less than the working pressure under which it will be used. The water used for tests shall be obtained from a potable source of supply. A fifty (50) pound per square inch (344.5 kPa) air pressure may be substituted for the water test. In either method of test, the piping shall withstand the test without leaking for a period of not less than fifteen (15) minutes."

- (52) Subsection 707.4 of Section 707.0, "Cleanouts", is hereby amended to read as follows:

"707.4 Each horizontal drainage pipe shall be provided with a cleanout at its upper terminal and each run of piping, which is more than one hundred (100) feet (30.4 m) in total developed length, shall be provided with a cleanout for each one hundred (100) feet (30.4 m), or fraction thereof, in length of such piping.

Exceptions:

- (1) Cleanouts may be omitted on a horizontal drain line less than five (5) feet (1.5 m) in length unless such line is serving sinks or urinals.

(2) Cleanouts may be omitted on any horizontal drainage pipe installed on a slope of seventy-two (72) degrees or less from the vertical angle (angle of one-fifth (1/5) bend).

(3) An approved type of two-way cleanout fitting, installed inside the building wall near the connection between the building drain and building sewer or installed outside of a building at the lower end of a building drain and extended to grade, may be substituted for an upper terminal cleanout.”

- (53) Paragraph 1 of Subsection 710.6 of Section 710.0, “Drainage of Fixtures Located Below the Next Upstream Manhole or Below the Main Sewer Level”, is modified to read as follows:

“Backwater valves, gate valves, motors, compressors, air tanks, and other mechanical devices required by this section shall be located where they will be accessible for inspection and repair at all times.”

- (54) Section 712.0, “Testing”, is hereby modified by deleting the following Subsections:

“712.4, 712.4.1, 712.4.2, 712.4.3, and 712.4.4.”

- (55) Move Section 712.4 to a new Section 320.0.

- (56) Move Section 712.4.1 to a new Section 320.1.

- (57) Move Section 712.4.2 to a new Section 320.2.

- (58) Move Section 712.4.3 to a new Section 320.3.

- (59) Move Section 712.4.4 to a new Section 320.4.

- (60) Subsection 713.4 of Section 713.0, “Sewer Required”, is hereby amended to read as follows:

“The public sewer may be considered as not being available only when so determined by the Administrative Authority (local, county or state).”

- (61) Section 723.0, “Building Sewer Test”, is hereby modified to read as follows:

“Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage disposal system and completely filling the building sewer with water from the lowest to the highest point thereof, or by approved equivalent low pressure air test, or by such other test as may be prescribed by the Administrative Authority. The building sewer shall be watertight at all points.

Exception: Sewer tests may be waived at the discretion of the Administrative Authority.“

- (62) Subsection 807.4 of section 807.0, “Appliances”, is hereby amended to read as follows:

“The discharge pipe of a domestic dishwashing machine may be directly connected to the tailpiece of the sink drain, or into the ‘boss’ of a food waste disposer without installation of an air gap fitting. The dishwasher discharge line shall be securely fastened as high as possible but not lower than two (2) inches below the flood rim of the sink.”

- (63) Section 1005.0, “Trap Seals,” is hereby amended to read as follows:

“Trap Seals. Each fixture trap shall have a liquid seal of not less than two (2) inches (50.8 mm) and not more than four (4) inches (101.6 mm) except where a deeper seal is found necessary by the Administrative Authority for special conditions. Traps shall be set true with respect to their liquid seals and, where necessary, they shall be protected from freezing.”

- (64) Section 1007.0, “Trap Seal Protection”, is hereby amended to read as follows:

“Trap Seal Protection. Floor drain or similar traps directly connected to the drainage system and subject to infrequent use shall be provided with an approved means of maintaining their water seals, except where not deemed necessary for safety or sanitation by the Administrative Authority. When automatic trap priming devices are installed, they shall be accessible for maintenance.”

- (65) Section 1007.0, “Trap Seal Protection”, is hereby amended by adding Subsection 1007.1 to read as follows:

“1007.1 Approved Means of Maintaining Trap Seals. Approved means of maintaining trap seals include the following, but are not limited to the methods cited:

1. Listed trap seal primer.
2. A hose bibb or bibbs within the room. The maximum distance between the hose bibb(s) and the trap seal shall be as determined by the Administrative Authority.
3. Drainage from untrapped lavatories discharging to the tailpiece of those fixture traps which require priming. All fixtures shall be in the same room and on the same floor level as the trap primer.”

- (66) Subsection 1210.1 of Section 1210.0, “Materials for Gas Piping”, is hereby modified to read as follows:

“All pipe used for the installation, extension, alteration, or repair of any gas piping shall be standard weight wrought iron or steel (galvanized or black) or yellow brass (containing not more than seventy-five (75) percent copper) or listed corrugated stainless steel tubing systems for interior use only. Approved PE pipe may be used in exterior buried piping systems.

Exception: CSST piping installed outside a building shall be sleeved or shall be installed with protection from mechanical damage equivalent of that required for CSST piping within the building. When installed underground, CSST shall be sleeved and shall have a minimum burial depth of eighteen (18) inches (457.2mm).”

(67) Table 14-1 is hereby amended to include the following:

“TABLE 14-1 – PLUMBING MATERIAL STANDARDS

Materials and Products	ANSI	ASTM	FS	IAPMO	Other Standards	Footnote Remarks
NON-METALLIC PIPE: Metal insert fittings utilizing a copper crimp ring for SDR9 crosslinked polyethylene tubing (PEX)		F1807-97				
PLUMBING FIXTURES: Waterless Urinals	Z124.9			C-3346”		

(68) The 3rd paragraph of Appendix C is added to read:

“Those jurisdictions which have not adopted a building code which stipulates minimum plumbing facilities shall utilize Appendix C of the 1994 UPC when establishing plumbing facility requirements.”

(69) Subsection D1.1 (c) of Appendix D, “Rainwater Systems”, is hereby modified to read as follows:

“Roof drains, overflow drains, and rainwater piping installed within the building shall be tested in conformity with the provisions of this Code for testing drain, waste, and vent systems.”

(70) Subsection D3.3, “Horizontal Rainwater Piping”, of Appendix D, “Rainwater Systems”, is hereby modified to read as follows:

“Horizontal Rainwater Piping. Horizontal Rainwater Piping shall be sized in accordance with Table D-2. Exception: The potential head of water

which may rise in the vertical drain pipe (tailpiece) may be used to reduce the horizontal pipe size and its slope if the head (rise) is sufficient when calculated as follows:

a. If the head ['h'] is equal to or greater than three-eighths ($3/8$) inch for each foot (31.35 mm/m) of horizontal pipe length, the horizontal pipe may be pitched at one-eighth ($1/8$) inch slope (10.45 mm/m), but sized according to the one-half ($1/2$) inch slope (41.8 mm/m) table.

b. If the head ['h'] is equal to or greater than one-eighth ($1/8$) inch for each foot (10.45 mm/m) of horizontal pipe length, the horizontal pipe may be pitched at one-eighth ($1/8$) inch slope (10.45 mm/m), but sized according to the one-fourth ($1/4$) inch slope (20.9 mm/m) table. (See Illustration A).

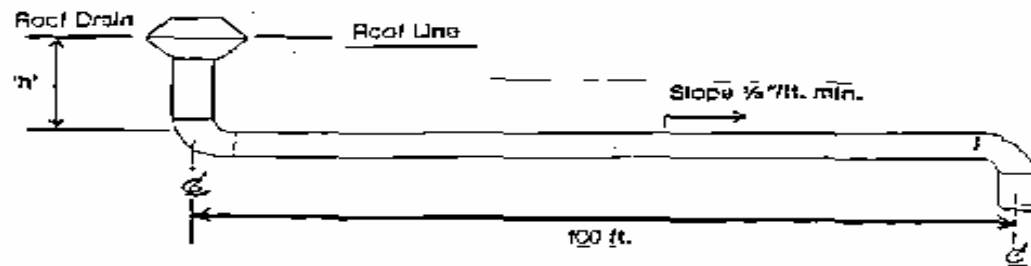


ILLUSTRATION A
Horizontal Rainwater Piping

- **EXAMPLE #1:** Roof Area – forty-eight hundred (4800) Square Feet (445.9 m²)
Maximum Rainfall/Hour – Six (6) Inches (152.4 mm/h)
Pipe laid at one-eighth ($1/8$) inch Slope (10.45 mm/m)
Using the one-half ($1/2$) inch slope (41.8 mm/m) table the horizontal pipe size will be six (6) inches. The available static head ['h'] needed to allow use of the one-half ($1/2$) inch (41.8 mm/m) table is calculated as follows: Three-eighths ($3/8$) inch of head pressure per foot (31.35 mm/m) of horizontal pipe run becomes $3/8$ -inch x 100 feet = 300/8ths, or 'h' = 37½ inches (952.5 mm). NOTE: Sizing from the one-eighth ($1/8$) inch (10.45 mm per m) table would have required the horizontal pipe size to be eight (8) inches (203.2 mm), rather than the six (6) inches (152.4 mm) made possible by use of the one-half ($1/2$) inch (41.8 mm/m) slope table.

- **EXAMPLE #2:** Roof Area – Six Thousand (6000) Square Feet
Maximum Rainfall/Hour – Six (6) Inches (152.4 mm)
Pipe Laid at one-eighth ($1/8$) inch Slope (10.45 mm/m)
Using the one-fourth ($1/4$) inch slope (20.9 mm/m) table the horizontal pipe size will be eight (8) inches (203.3 mm). The available static head

['h'] needed to allow use of the one-fourth (1/4) inch (20.9 mm/m) table is calculated as follows: One-eighth (1/8) inch of head pressure per foot (10.45 mm per m) of horizontal pipe run becomes 1/8-inch x 100 feet = 100/8ths, or 'h' = 12½ inches (317.5 mm). NOTE: Sizing from one-eighth (1/8) inch (10.45 mm per m) table would have required the horizontal pipe size to be ten (10) inches (254.0 mm) , rather than the eight (8) inches (203.2 mm) made possible by use of the one-fourth (1/4) inch slope (20.9 mm/m) table.

c. If the head ['h'] is equal to or greater than ten (10) feet (3.05 m) (for example, base of a stack), all horizontal pipe downstream of any such vertical section may be the same size as the vertical pipe to which it is connected."

- (71) Appendix F, "Medical Gas Systems", is hereby deleted in its entirety and is replaced with the following sections of NFPA #99, Health Care Facilities (1996 Edition) as amended by this section, which are incorporated by reference. The incorporation by reference does not include any later amendments or editions. Copies of the incorporated material are available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02169, and are on file with the Office of the Secretary of State:

"F1 Scope

The provisions herein shall apply to the installation, testing, and certification of medical gas and vacuum piping for safe use inpatient care hospitals, clinics, and other health care facilities.

The purpose of this appendix is to provide minimum requirements for the installation, testing, and certification of medical gas and medical vacuum systems, from the point of supply to the user outlets or inlets. These provisions do no cover portable systems or cylinder storage requirements.

F2 All medical gas and vacuum piping systems are to be installed and inspected based upon applicable language found in the following chapters of NFPA #99, Health Care Facilities (1996 edition):

Chapter 1. Introduction.

1-1 Scope

1-2 Application. (Use first paragraph; delete second paragraph)

1-3 Intended Use

1-4 Discretionary Powers of Authority Having Jurisdiction

1-5 Interpretations

1-6 Organization of This Document (including subsections 1-6.1, 1-6.2, and 1-6.3)

1-7 Metric Units

1-8 Effective Date

1-9 Preface

Add Sec. 1-10 to read: "Sections of NFPA 99, 1996 edition, which are not referenced are not mandated by the Arizona Uniform Plumbing Code."

Chapter 2. Definitions.

2-1 Official NFPA Definitions

2-2 Definitions of Terms Used in the Standard

Chapter 4. Gas and Vacuum Systems.

4-3.1.1.2 Storage Requirements (Location, Construction, Arrangement)

4-3.5 Administration - Level 1

4-3.5.1 Responsibility of Governing Body

4-3.5.2 Gas System Policies - Level 1

4-3.5.2.1 Gases in Cylinders and Liquefied Gases in Containers -
Level 1

4-3.5.2.2 Storage of Cylinders and Containers - Level 1

4-3.5.2.3 Patient Gas Systems - Level 1

4-3.5.3 Gas Systems Recordkeeping - Level 1

4-3.5.4 Gas Systems Information and Warning Signs - Level 1

4-3.5.4.1 (No Heading)

4-3.5.4.2 (No Heading)

4-3.5.4.3 (No Heading)

4-3.5.5 Gas System Transport and Delivery - Level 1

4-3.5.5.1 (No Heading)

4-3.5.5.2 (No Heading)

4-3.5.6 Vacuum Systems Policies – Level 1

4-3.5.6.1 Patient Vacuum Systems

4-3.5.7 Vacuum System Recordkeeping - Level 1

4-3.5.8 Vacuum System Information and Warning Signs - Level 1

4-3.5.8.1 Piping Distribution System

4-3.5.8.2 Gauge Identification

4-3.5.9 WAGD System Policies - Level 1

4-3.5.9.1 Maintenance

4-3.5.9.2 Performance Tests

4-4 Level 2 Piped Systems

4-4.1 Piped Gas Systems - Level 2

4-4.2 Piped Vacuum Systems - Level 2

4-4.3 Piped WAGD Systems - Level 2

4-4.4 Performance Criteria and Testing - Level 2

4-4.5 Administration - Level 2

4-5.5 Administration - Level 3

4-5.5.1 Responsibility of Governing Body

4-5.5.2 Gas System Policies - Level 3

4-5.5.2.1 (No Heading)

4-5.5.2.2 (No Heading)

- 4-5.5.2.3 Patient Gas Systems – Level 3
- 4-5.5.3 Gas System Recordkeeping - Level 3
- 4-5.5.4 Gas System Information and Warning Signs - Level 3
- 4-5.5.5 Gas System Transport and Delivery - Level 3
- 4-5.5.6 Vacuum System Policies - Level 3
- 4-5.5.7 Vacuum System Recordkeeping - Level 3
- 4-5.5.8 Vacuum System Information and Warning Signs - Level 3
- 4-5.5.9 WAGD System Policies - Level 3
- 4-6.5 Administration - Level 4

Chapter 12. Hospital Requirements.

12-1 Scope

12-3.4 Gas and Vacuum System Requirements

- 12-3.4.1 (No Heading)
- 12-3.4.2 (No Heading)
- 12-3.4.3 (No Heading)
- 12-3.4.4 (No Heading)
- 12-3.4.5 (No Heading)

Chapter 13. Ambulatory Health Care Center Requirements.

13-1 Scope

13-3.4 Gas and Vacuum System Requirements

- 13-3.4.1 (No Heading)
- 13-3.4.2 (No Heading)
- 13-3.4.3 (No Heading)
- 13-3.4.4 (No Heading)
- 13-3.4.5 (No Heading)

Chapter 14. Clinical Requirements.

14-1 Scope

14-3.4 Gas and Vacuum System Requirements

- 14-3.4.1 (No Heading)
- 14-3.4.2 (No Heading)
- 14-3.4.3 (No Heading)
- 14-3.4.4 (No Heading)
- 14-3.4.5 (No Heading)

Chapter 15. Medical and Dental Office Requirements.

15-1 General

15-1.1 Scope

15-1.2 Applicability

15-3.4 Gas and Vacuum System Requirements

- 15-3.4.1 (No Heading)
- 15-3.4.2 (No Heading)
- 15-3.4.3 (No Heading)
- 15-3.4.4 (No Heading)

- 15-3.4.5 (No Heading)
- 15-3.4.6 (No Heading)
- 15-3.4.7 (No Heading)
- 15-3.4.8 (No Heading)
- 15-3.4.9 (No Heading)

Chapter 16. Nursing Home Requirements.

16-1 Scope

16-3.4 Gas and Vacuum System Requirements

16-3.4.1 (No Heading)

16-3.4.2 (No Heading)

Chapter 17. Limited Care Facility Requirements.

17-1 Scope

17-3.4 Gas and Vacuum System Requirements

17-3.4.1 (No Heading)

17-3.4.2 (No Heading)

Chapter 19. Hyperbaric Facilities.

19-1 Introduction and Scope

19-3.3.3 (No Heading)

19-3.3.5 (No Heading)”

- (72) Subsection “(a)” of Section H 2, “Design”, of Appendix H, “Recommended Procedures for Sizing Commercial Kitchen Grease Interceptors”, is hereby modified to read as follows:

“Interceptors shall be constructed in accordance with the design approved by the Administrative Authority and shall have a minimum of 2 compartments with fittings designed for grease retention. Grease interceptors shall be constructed of solid durable materials, not subject to excessive corrosion or decay, and shall be watertight.””